

REMARKS

Claims 1-7, 19-23, 25, 28 and 36 were rejected under 35 U.S.C. §103 as allegedly being unpatentable over United States Patent No. 5,558,084 to Daniell et al. in view of United States Patent No. 4,332,165 to Kawai. Reconsideration of the rejection and allowance of the claims is requested.

The system disclosed in Daniell is for maintaining a fixed temperature difference between the air supplied by a humidifier in a breathing assistance apparatus and the ambient air. The reason why this is desirable is that it prevents or minimizes condensation in the gas supply conduit to the patient. If the temperature of the ambient air is much lower than the temperature of the supplied air, condensation will occur in the supply conduit as the warm supplied air contacts the cooler conduit walls. The system described in Daniell provides air to the patient at the highest temperature possible and therefore with the highest moisture content possible, without condensation occurring. This is explained clearly in column 1, line 60 to column 2, line 11 of Daniell.

The control system used by Daniell is summarized in column 3, lines 19-27. Both the heater plate in the humidifier and the conduit heater are controlled solely based on temperature measurements. The ambient air temperature is measured or estimated and the temperature of gas from the humidifier is measured. The heater plate and conduit heater are controlled to provide a fixed temperature difference between the ambient air and the supplied air. If the ambient air temperature drops, the power to the heater plate and the conduit heater is reduced to maintain the fixed temperature difference.

Daniell does not disclose any measurement or determination of air flow. Daniell does not disclose continuously monitoring any parameter which in combination with the input power to the conduit heater would allow for an estimation of flow rate. Daniell does not

disclose monitoring the input power to the conduit heater. Daniell does not disclose controlling power supplied to the humidifier or conduit heater based on anything other than temperature values.

All the system discloses in Daniell is designed to do is maintain a fixed temperature difference between the supplied air and the ambient air.

Kawai discloses a system for an internal combustion engine which provides a measure of gas flow based on the amount of power supplied to a heater wire. The amount of power supplied to the heater wire necessary to maintain a fixed temperature difference between two points, respectively upstream and downstream of the heater wire, is monitored. The principle is that the higher the flow rate, the more power is required to raise the temperature of the air by a fixed amount. In the system of Kawai, the power supplied to the heater is alone indicative of flow rate as the control circuit is set up to maintain a constant temperature difference between the two points. No other parameter needs to be determined in order to estimate flow rate.

Applicants submit that there is no motivation provided by Daniell to monitor the rate of gas flow in the apparatus. There is no mention of the rate of gas flow in Daniell, let alone mention of monitoring it. The system of Daniell is based entirely on the use of temperature sensors to determine temperature. There is no indication by Daniell as to how and why a measure of the rate of gas flow through the apparatus might be useful. Accordingly, there is no motivation to combine Kawai with Daniell.

As Applicant has previously stated, the combination of Daniell and Kawai, however unlikely, would not result in the present invention. The combination of Daniell and Kawai would result in a system for maintaining a fixed temperature difference between the ambient air and gas supplied to a patient, together with a means of measuring gas flow in the system

using the power supplied to a heater wire. The control of the heater plate in the humidifier (and the conduit heater) would still be based on sensed temperatures, as there is no motivation to do otherwise.

The Examiner has alleged that a measure of gas flow as described by Kawai could be used as an alternative or in place of other gas measuring devices in Daniell. Applicants submit that this is simply not the case. The only gas measuring devices in Daniell are temperature sensors.

A measurement of flow rate cannot replace temperature measurement in the system of Daniell. When trying to maintain a fixed temperature between the ambient air and the supplied gas, knowledge of both the ambient air temperature and the supplied gas temperature is required. Knowledge of flow rate does not allow determination of the absolute or relative temperature of the supplied gas.

Accordingly, Applicant submits that there is no motivation to combine Daniell with Kawai nor would the combination result in the claimed invention. Reconsideration and allowance of the claims is requested.


Applicants' attorney, Linda Palomar, had a telephone conference with the Examiner on May 4, 2006 regarding this application. The apparatus of Daniell and Kawai were discussed and the differences between Daniell and Kawai and the claimed subject matter were discussed, but no agreement as to the allowability of the claims was reached.

Applicants respectfully submit that the claims of the application are allowable over the rejections of the Examiner. Should the Examiner have any questions regarding this Amendment, the Examiner is invited to contact one of the undersigned attorneys at (312) 704-1890.

Respectfully submitted,

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